

## Chapter Six: Environmental and Community Considerations

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The feasibility of a plan and its implementation often depends on whether it will have impacts on the communities that it is intended to serve, or if construction of its components will impact the surrounding natural environment.

The purpose of this chapter is to provide a summary and general discussion of the potential impacts that implementation of the proposed infrastructure improvements may have on the environment and the surrounding communities.<sup>1</sup> As discussed in Chapter Five, as each proposed project is implemented, appropriate environmental documentation will be prepared.

### What environmental resource areas have been reviewed?

When analyzing a project for potential environmental and community impacts, a number of resources are reviewed. Examples of environmental resources are wetlands, vegetation, wildlife, land use, and historic resources. This chapter discusses those resources and why it is important to consider them during project planning and design.

#### Waterways and Hydrological Systems

Our image of Washington State is a land of sparkling rivers, wetlands, lakes, and coastal waterways. The need to keep these waters clean is essential not only for the natural beauty and health of our communities, but also for survival of animal species and fish that depend upon these waterways for water and food.

In addition to surface waters, groundwater and aquifers are also critical elements of our environment. Groundwater is an important natural resource. For many residents of western Washington, groundwater is their sole source of water for all their daily water needs.

Although groundwater exists everywhere under the ground, some parts of the saturated ground contain more water than others. Such an area is called an aquifer. An aquifer is an underground formation of permeable rock or loose

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<sup>1</sup>*Detailed existing conditions of the rail corridor (environmental and community conditions), potential impacts, and conceptual mitigation are presented in the Amtrak Cascades Environmental Overview Technical Report, 1998, reprinted 2005.*

material that can produce useful quantities of water when tapped by a well. Aquifers provide drinking water for communities throughout the corridor.

Groundwater quality, like surface water quality, can be eroded by contaminants introduced by various domestic, industrial, and agricultural practices. Even where we might not use it directly as a drinking water supply, we must still protect groundwater, since it will carry contaminants and pollutants from the land into the lakes and rivers from which other people get a large percentage of their freshwater supply.



Floodplains are lowland areas adjacent to lakes, wetlands, and rivers that are covered by water during a flood. The ability of the floodplain to carry and store floodwaters needs to be preserved in order to protect human life and property from flood damage. Also, undeveloped floodplains provide many other natural and economic resource benefits.

Floodplains often contain wetlands and other areas vital to a diverse and healthy ecosystem. Undisturbed, they have high natural biological diversity and productivity. Floodplain vegetation provides important resting, feeding and nesting areas for many waterfowl species. River corridors are frequently used as flyways for migrating birds.

Floodplain vegetation and soils serve as water filters, intercepting surface water runoff before it reaches the river, stream, or lake. This process aids in the removal of excess nutrients, pollutants, and sediments from the water and helps reduce the need for costly cleanups and sediment removal.

Much of the rail corridor passes through floodplain or flood fringe areas.

### **Hazardous Materials**

Finding and cleaning up hazardous materials along the corridor is for the benefit and safety of railroad workers, rail passengers and local residents. It is not anticipated that there will be exposure to potentially hazardous sites and materials during construction or operations. However, there is a possibility of

finding a historical spill or dump site anywhere along the corridor. As the right of way is primarily used for freight hauling, any commodity being hauled along the route during the past 100 years could have spilled at any location. Recent legislation requires records and clean-ups of such incidences. Spills prior to 1970 were generally not recorded.

### **Biological Resources/Ecology**

Wetlands were once thought of as swampy, bug-filled “wastelands” that were useful only when they were filled in and developed for industry, housing, or businesses. Today, however, society is beginning to realize that wetlands are unique, natural areas, important to the ecosystem we all share, and thus they should be conserved and protected.

Wetlands occur wherever land is inundated, covered, or influenced by the presence of water. Wetlands support the growth of water-loving/tolerant vegetation that is adapted to wet sites.

At times of flooding, wetlands at the mouths of streams and rivers receive overflow water that is rich in nutrients and sediments. In the stillness or gentle motion of the wetlands, these sediments settle out and clearer water percolates into the groundwater. Thus, wetlands play an essential role in filtering nutrients and sediments out of water before it enters lakes and bays. By storing and slowly releasing flood water, wetlands also moderate the damage that flooding can cause.

Wetlands are located throughout stream and river systems, providing nutrient and sediment traps and flood control all along the way.

Wetlands often have very close connections to the groundwater system. Some may serve as important groundwater recharge areas. Others are receptors for significant amounts of groundwater discharge. If the underlying groundwater is contaminated, the consequences will be felt by the wildlife and all other resources dependent on that wetland.

Numerous and diverse types of wetlands are located within the corridor, many that are at locations where the railroad crosses the many waterways.

The preservation of our wildlife, fisheries and vegetation has long been a priority of Washingtonians. The rail corridor lies adjacent to and crosses many water resources within the state. Most of the water resources are fish-bearing streams or rivers. Fish



species in the corridor include Steelhead, Chinook Salmon, Coho Salmon, and Sockeye Salmon. Many of the fish species in Washington State have recently been listed (or proposed for listing) as threatened or endangered species under the Endangered Species Act. Of these species, those prevalent in our corridor include Coho Salmon, Sea-run Cutthroat, Chum Salmon, Steelhead, Bull Trout, and Chinook Salmon.

Wildlife habitat is abundant along the Columbia River and other river and stream crossings along the corridor. Threatened and endangered species—and species of concern—likely to occur in the corridor vicinity include the peregrine falcon and osprey.

Vegetation throughout the corridor varies. It transitions from prairie grasses to wooded areas, with concentrations of Douglas fir, alder, and big leaf maples.

### **Air Quality**

Polluted air can cause or worsen lung-related diseases—such as emphysema, chronic bronchitis, and asthma—and can cause breathing difficulty and even death. Easily inhaled small particles, called particulate matter, are perhaps the most significant health concern related to poor air quality.

Polluted air can contribute to water pollution and lead to decreased visibility. It can also damage building materials, cloth and metals, trees, agricultural crops and other living organisms. When a new transportation facility is proposed, it is imperative that we review the impacts that facility will have on our air.

## Soils and Geology

Knowing the types of soils and geologic formations in a project area is very important. They determine the potential for landslides in the area and the area's susceptibility to vibration caused by trains. Thus, the types of soils dictate how a project should be constructed.

In addition, steep slopes throughout the corridor can be disrupted during construction of rail improvements. It is critical that these areas be identified as part of project planning. As each proposed capital improvement moves forward, slope stabilization will be evaluated and incorporated into the project design.

## Land Use

Land use refers to the types (uses) of buildings and land (for example, commercial, residential, agricultural) in an area. When new transportation projects are under consideration, it is important to ask two land-use related questions.



First, is the proposed project compatible with surrounding land uses? For example, building a new freeway through a regional park would not be considered a compatible use.

Second, will existing land uses change as a result of the new transportation facility? Sometimes it is desirable to have the existing land use change, and sometimes it is not.

Throughout the corridor there are many different land uses. In Clark, Cowlitz, and Lewis counties, the land uses are primarily rural in nature. In the larger cities, such as Tacoma or Seattle, the land uses are concentrated with a mix of industrial uses and commercial uses. In Skagit and Whatcom Counties, there are many agricultural uses. In a few of the smaller communities, some housing is located close to the railroad tracks.

Another aspect of land use is the development of comprehensive plans. In 1990, the Washington State Legislature adopted the state's first comprehensive Growth Management Act, which is designed to help communities direct urban growth, reduce sprawl, and protect their resources. As part of the Growth Management Act, most communities are required to develop land use plans that will dictate the character and direction of growth within their cities. Changes to the passenger rail system and its facilities must now be compatible with these plans.

### **Farmlands**

In our increasingly urbanized society, the federal government and the state of Washington have recognized the importance of preserving our diminishing farmland. It is imperative that projects minimize the disruption to these agricultural resources as much as possible.

### **Parks and Cultural Resources**

Historic and archeological resources include historic buildings, districts, and archeological sites. In 1966, this country recognized the importance of preserving these treasures of our culture through the National Historic Preservation Act.

The Pacific Northwest Rail Corridor is rich in resources ranging from Native American burial sites and villages to the historic Fort Lewis Museum building, to the historic Fairhaven district in Bellingham. The corridor is also rich in park and recreational facilities. They range from small playgrounds to sandy beaches to large state facilities. The rail right of way parallels numerous parks and recreational facilities.

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, provides protection for significant publicly-owned parks, recreation areas, wildlife refuges, and historic sites. Transportation projects that adversely affect such resources may not be approved by the U.S. Secretary of Transportation unless a determination is made that there is no feasible and prudent alternative, and that all planning has been done to minimize harm.

### **Social and Economic Resources (including Relocation and Environmental Justice)**

In environmental planning, the technical area called social and economic resources includes review of access to social and educational facilities (religious institutions, schools, community centers), emergency vehicle access, community cohesiveness, and general economic conditions of the area.

When building a new project or implementing a new program, these elements play a vital role in the placement of the new facility or program. For example, it would be illogical to plan and implement a bus system if it did not go from a residential neighborhood to a commercial area. It is important to make sure the facilities can truly serve the community. In the case of intercity passenger rail, many of the communities cannot be served directly since they don't have a station in their area and they are not on the rail line. However, it is still important to look at the social and economic resources throughout the corridor to make sure that the rail system will not adversely impact the social structure of existing communities.

It is also important to look at the communities' views of safety because many residents feel that more trains and faster trains will make their communities less safe. Residents feel uncomfortable driving or walking over railroad tracks. Also, since some tracks separate neighborhoods from shorelines, many people illegally walk over the tracks to get to the beach to fish, walk, or picnic.

When implementing a project, it is sometimes necessary to relocate families and businesses because the new transportation facility may impact the home or business to the point where that property is no longer usable. It also happens that the new transportation facility may need more right of way to accommodate its design.

Another important aspect to consider when reviewing community cohesion and relocation is environmental justice. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was enacted on February 11, 1994. This Executive Order requires each federal agency, to the greatest extent practicable and permitted by law, to achieve environmental justice as part of its mission. Agencies are to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects of their programs, policies, and activities, on minority and low-income populations. In June 1997, the U.S. Department of Transportation implemented Order 5610.2 to establish procedures for U.S. Department of Transportation agencies, including the Federal Highway Administration (FHWA) and the Federal Railroad Administration (FRA), to comply with this Executive Order.

### **Visual Quality**

The rail corridor program provides for improvements to passenger rail service. These improvements include constructing standard tracks and associated facilities along existing right of way that are not expected to impede visual quality. Some improvements include replacing existing grade crossing and bridge or overpass facilities.

## Energy

Energy and its conservation, in general, are important factors to consider when implementing a transportation program. A passenger rail train consumes about 350,000 BTUs (British Thermal Unit) of energy per vehicle mile. This energy is in the form of diesel fuel, a hydrocarbon-based petroleum product. A typical automobile consumes about 6,200 BTUs of energy (in gasoline form) per vehicle mile. Due to its high passenger capacity, the passenger train carrying fifty-six or more passengers is more efficient than one single occupant automobile.

## Noise and Vibration

An increase in noise can affect the peacefulness of your home, the sacredness of your religious institution, or the serenity of a park or historic site. It is important to measure changes in noise and to mitigate adverse affects.

Railroad noise varies because of operating factors and conditions. Operating factors include the type of train, train frequency, the numbers and lengths of trains, and operating speeds. The number of curves on the tracks, track maintenance, and the terrain in which the track is set - all can affect the noise level. In addition, grade crossings require certain whistles and warning bells. The significance of the noise depends on conditions and on the particular land uses and activities that occur along the corridor and their sensitivity to noise.

## What are the potential impacts?

**Exhibit 6-1**, on the following page, presents a summary of general potential impacts identified in a typical environmental review. For the purposes of the environmental overview, a “worst case scenario” is presented. This scenario presumes that all of the affected environmental features within the study corridor will be impacted by some type of construction project within the next twenty years.

## Are there specific areas of concern?

Review of **Exhibit 6-1** indicates that certain environmental resources could be seriously impacted, depending upon the exact nature of the project improvements and their location. These areas of concern include wetlands, shorelines, threatened and endangered species, slope stability, and park/historic resources. As WSDOT moves forward with project planning and design, it will pay special attention to these resources. Project alternatives will be considered to avoid adverse impacts to these resources.



**Exhibit 6-1**  
**Summary of General Potential Environmental Impacts by County<sup>1</sup>**

<u>Resource</u>	Clark	Cowlitz	Lewis	Thurston	Pierce	King	Snohomish	Skagit	Whatcom
Water Crossings	5	14	7	6	5	7	9	4	6
Miles of Shoreline		4			20	10	18	5	12
Hazardous Sites <sup>2</sup>	23	18	17	2	43	138	52	6	45
Wetlands <sup>3</sup>	Less than 500 acres	751 to 1,000 acres	500 to 750 acres	Less than 500 acres	Over 1,000 acres	751 to 1,000 acres	Over 1,000 acres	Less than 500 acres	751 to 1,000 acres
T&E Species Habitat Sites <sup>4</sup>	0	200 acres	0	0	230 acres	0	10 acres	72 acres	11 acres
Critical Habitat <sup>5</sup>	4	16	1	17	14	11	11	3	7
Unstable Slopes <sup>6</sup>	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Parks <sup>7</sup>	7	2	5	1	20	22	17	5	13
Historic Resources <sup>7</sup>	5	4	10	4	39	40	16	2	15
Targeted Populations <sup>8</sup>	1	4	1	0	5	13	2	0	3

1. All impacts are estimates. Information was developed using existing resources and mapping. Site specific review and field review were not performed as part of this analysis.
2. Known sites located within 2,000 feet of the rail corridor.
3. These figures are approximations of wetlands (many located along shorelines) within 1,000 feet of the rail corridor.
4. Threatened and Endangered Species (T&E) Habitat Sites: reflects the number of acres of habitat that are located within 1,000 feet of the rail corridor.
5. Known Washington and Puget Sound Rare and Native Plant Sites, Wildlife Heritage Data Sites, and Seabird Colony Sites located within 1,000 feet of the rail corridor.
6. Indicates areas with extensive amounts of unstable slopes along the rail corridor.
7. Located within 1,000 feet of the rail corridor. Most resources are located on the National Register.
8. Per Executive Order on Environmental Justice, these figures reflect the number of census tracts along the rail corridor that have a population of fifty percent or more minority residents and/or populations where twenty percent or more of the residents have income below poverty level.

## **What are the long-term impacts?**

In addition to the Amtrak *Cascades* program, a number of related actions are also being implemented along the rail corridor. These include Sound Transit's commuter rail service and the general expansion plans of the BNSF.

Expansion and implementation of these actions have been incorporated into capacity analyses for the corridor program. As such, future projects could potentially serve all of these programs. This environmental review looks at cumulative impacts that could relate to the many programs along the corridor.

Current environmental documents produced by Sound Transit also look at long-term, cumulative impacts as they relate to the various programs being implemented. Their conclusions, as well as WSDOT's, indicate that there will not be significant secondary and cumulative impacts along the corridor.